The Geographic Distribution of Pilea fontana

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In 1913 Dr. J. Lunell, proposing *Adicea fontana* as distinct from the widespread *A. pumila* (L.) Raf., cited collections of his new species from Benson County, North Dakota only. Rydberg, having made the new combination for the plant necessitated by the conservation of the name *Pilea* (Brittonia 1:87. 1931), later defined its range as "N.D.-Nebr." (Flora of the Prairies and Plains of Central North America. 1932). He maintained as likewise distinct, however, another of Lunell's segregates from *Pilea pumila* (L.) Gray, namely *P. opaca* (Lunell) Rydb., but botanists of such extensive field experience as Professor M. L. Fernald and Mr. C. C. Deam have been unable to concur with Rydberg in his demarcation of *P. opaca* from *P. fontana. Pilea fontana,* in its consistently black achenes with prominent colorless margins (the achenes of *P. pumila* being uniformly green and marginless), its relatively small and short-petioled leaves with blades only 8- to 18-toothed and rounded or truncate at the base rather than cuneate, seems amply deserving of recognition, while *P. opaca* exhibits merely the unstable characteristics of an ecologic variant. If *P. opaca* is considered as synonymous with *P. fontana* the combined range of the two, according to Rydberg's account, will include Wisconsin.

Recently Professor Fernald has appreciably extended the range of *P. fontana* in delimiting it as "from North Dakota to Nebraska, extending eastward to western New York" (Rhodora 38:170. 1936). The range of the species may now be further extended from an examination of the North American *Pilea* collections in the herbarium of the New York Botanical Garden and in the U. S. National Herbarium, where typical material of *P. fontana* was found from as far east as Prince Edward Island, Long Island and northeastern New Jersey and from as far south as Florida.

The known stations for *Pilea fontana* are still very few in comparison with those of the ubiquitous *P. pumila,* yet it is clear that the former is by no means a species of limited distribution. More general discrimination between the two by local botanists will doubtless modify the present proportionate representation of these two clearweeds in herbaria. An observation upon the difference in

habitat preference between the two may be useful in distinguishing them in the field. Unlike *P. pumila,* which shows a partiality for moist, shaded woods and is not, as a rule, conspicuously gregarious, *P. fontana* is usually found in a boggy or marshy environment, frequently in the open where it may form extensive carpets simulating a mat of seedlings of the coarser *P. pumila.* The collections of *P. fontana* seen by the writer are cited below, in the interest of students of local floristics to whom its known range may be indicative of the possibility of detecting it in their areas.

Prince Edward Island: Larch swamp, Dundee, Kings Co., Aug. 26, 1912, *Fernald, Long and St. John,* no. 7324 (US). New York: Ithaca, Sept. 11, 1875, without collector (US); Bridgehampton, Long Island, Aug. 12, 1925, *W. C. Ferguson,* no. 4788 (NY). New Jersey: Wet woods in Eagle Rock, Essex Co., Oct. 1, 1905, *K. K. Mackenzie,* no. 1869 (NY); West Englewood, Bergen Co., Sept. 15, 1917, *P. Wilson* (NY). Virginia: Abundant in wet land, Glencarlyn, Arlington Co., Oct. 6, 1894, *L. H. Dewey,* no. 162 (US); wet swale west of Edinburgh near Columbia Furnace, Shenandoah Co., Aug. 14, 1938, *H. A. Allard,* no. 5459 (US); low ground near Jones Mill Pond, Williamsburg, James Co., Sept. 20, 1921, *E. J. Grimes,* no. 4409 (NY). Marsh near Longshol, Montgomery Co., June 23, 1940, *F. J. Hermann,* no. 10665 (US). Florida: Near Jacksonville, Duval Co., Oct. 29, 1894, *A. H. Curtis,* no. 5349 (NY; US). Ontario: Amherst Islands, Aug. 15, 1890, *J. Fowler* (US). Michigan: Open marshy bank of Huron River 2 miles east of Ann Arbor, Washtenaw Co., Sept. 22, 1935, *F. J. Hermann* no. 7341 (*Plantae Exsiccatae Grayanae,* no. 650) (NY; US); marshy border of lake, 2 miles west of Cambridge, Lenawee Co., Oct. 1, 1936, *F. J. Hermann,* no. 8408 (NY); marsh bordering stream, 1 mile east of Trist, Jackson Co., Sept. 18, 1937, *F. J. Hermann,* no. 9297 (NY). Indiana: Abundant in decadent tamarack bog, 5 miles east of Lagrange, Lagrange Co., Sept. 20, 1936, *C. C. Deam,* no. 57418 (US). Wisconsin: Green Bay, Brown Co., Sept. 17, 1891, *J. H. Schuette* (NY). Minnesota: Moist meadows, Winona, Winona Co., June 1886, *J. M. Holzinger* (NY; US); shore of Morrison Lake, Itasca Park, Clearwater Co., Sept. 6, 1929, *M. L. Grant,* no. 3285 (NY; US). North Dakota: In a thoroughly shaded cold bog along a rill, Pleasant Lake, Benson Co., Aug. 14, 1911, and July 3,

1912, *J. Lunell* (Cotype) (NY). Nebraska: On Middle Loup River, near Thedford, Thomas Co., Aug. 7, 1893, *P. A. Rydberg,* no. 1609 (NY); on South Fork of Dismal River, Aug. 12, 1893, *P. A. Rydberg,* no. 1609 [!] (US); on Middle Loup River, near Mullen, Hooker Co., Aug. 19, 1893, *P. A. Rydberg,* no. 1609 [!] (US); South Cody Lake, Sept. 19, 1915, *Ray Thomson* (US).

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Marine Flowering Plants

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It is, of course, well known that there are a great many genera and species of flowering plants which are not only able to live under very saline conditions along the sea-coasts of the earth and at the borders of salt lakes, but many which in fact thrive only in such situations and under such conditions and will not grow well, if at all, in any other habitat. Such plants are known as halophytes. Many scores of species of flowering plants grow regularly on land which is periodically inundated by rising tides of salt water (as, for example, *Eriocaulon parkeri*), while the value of mangroves (*Avicennia, Rhizophora, Laguncularia*) in extending the margin of land into the sea in the famous mangrove-lagoons of tropical regions is well known.

These plants, however, are all fundamentally terrestrial plants. It is not so well known by the general public or even by botanical students that a considerable number of genera and species of flowering plants actually are able and do live all of their lives in the sea, completely submerged at all times by the water of the earth's oceans, in company with the many thousands of microscopic and macroscopic species of blue-green, green, red, and brown algae, which are the true "seaweeds" as we usually think of them and which are flowerless and much more primitive types of plant life. The marine flowering plants often grow in colonies fully as extensive as those of some marine algae and are, in fact, often mistaken